Kennis voor Klimaat

Knowledge for Climate

Governance of Adaptation

WP 7.3.1. Allocation of Public and/or Private Responsibilities: governance arrangements for green roofs

Description of the research

This research was commissioned by Knowledge for Climate, Hotspot Rotterdam Region (http://knowledgeforclimate.climateresearchnetherlands.nl/hotspots/rotterdam-region), and included an international comparison of governance arrangements for the promotion of green roofs as an innovative no-regrets measure for storm-water retention in dense urban areas. In total 5 cities were studied: Basel, Chicago, London, Rotterdam and Stuttgart, all frontrunners in green roof policy but with different governance arrangements. For each city an analysis was made of the most relevant policy documents. In addition 54 semi-structured interviews were conducted with key stakeholders of the public and private sectors. The research was conducted from May until September 2011.

Research question

Which governance arrangements exist for green roofs, and how effective are these arrangements in reducing vulnerability to climate change?

Key conclusions

- There is a rather strict public-private divide; true joint public-private responsibility hardly exists.
- In every city the initial planning stage of the policy process is dominated by public responsibility. This responsibility is primarily aimed at securing sufficient adaptation action, so as to reduce flood risk from increased rainfall on behalf of current and future generations.
- The steering strategy employed is hierarchical: the local authorities determine the strategy and policy mix to induce private action (partly after consultation with private actors).
- Private responsibility dominates in the implementation and maintenance stages of the policy process. Efficiency is the most important consideration of public authorities to promote private responsibility, as well as of private actors to take on this responsibility.

In particular the green roof industry is very active in developing product innovations, either to decrease the costs of green roofs or to raise the benefits of green roofs (by creating special features such as increased water retention, light weight and modular constructions, multi-functional roofs etc.) Market steering is evident in these stages: the private sector regulates itself, and many private partnerships have been created between professions (architects, consultants, horticulturists, green roof suppliers).

- The key difference among the cities is: although all local authorities have an important responsibility in the planning stage, public responsibility is much greater in Basel and Stuttgart. It extends over the entire policy process, and particularly in the evaluation stage. Both cities have introduced a requirement for green roofs on new (re-) developments in their local building codes. Consequently they actively monitor and check green roof implementation, in order to guarantee a ‘level playing field’ for all.
- In the three other cities (Chicago, London and Rotterdam) private responsibility is more manifest: it is up to property owners themselves to decide whether they install a green roof.

- The cities of Basel and Stuttgart, which can be characterized by a higher level of public responsibility, achieve substantially higher implementation rates for green roofs (by a factor of 25 times or more) than the other cities, as measured by the percentage of green roof coverage relative to the available roof surface (mainly flat roofs). Basel and Stuttgart also have a well developed market for green roofs with substantially lower price levels.
- Despite the 'no-regrets' character of green roofs, their potential to mitigate surface water flooding is still hardly exploited. This research shows that public responsibility is salient for unleashing this potential, in particular in the early stages of the policy process.

Specific lessons from Basel & Stuttgart

- Both cities opted for a gradual path towards a mandatory requirement for green roofs, by preceding the requirement with a long-term subsidy and communication program.
- The combination of policy instruments, i.e. a reduction of the storm-water fee (economic incentive) to offset the green roof obligation on new/re-builds as applied in these cities, appears to make the arrangement legitimate. Moreover, private actors were involved in the introduction of the mandatory requirement at an early stage. This allowed them to think along and to help build the necessary knowledge and expertise for the implementation of green roofs.

Challenges for Rotterdam (The Netherlands)

- For housing associations it is currently not possible to raise the rent after installment of a green roof on a building (causing a split incentive between the tenants/beneficiaries and their landlords).
- The different water boards do not have a uniform policy for green roofs and their quantification of benefits in terms of water retention. Furthermore, they are reluctant to promote green roofs, since they cannot be legally recorded (e.g. through zoning plans).

Opportunities for Rotterdam

- Incorporation of green roofs in sustainable building certification/rating schemes (such as BREEAM and LEED).
- Establishment of contracts with housing associations/real estate companies for the implementation of green roofs in highly urbanized parts of the city.
- Multi-functional use of roof space, for example by combining green roofs with solar panels, as is promoted in Basel.
- Various respondents indicated to prefer a mandatory requirement over a subsidy program, since this creates clarity and applies to everyone. A subsidy program does not offer long-term certainty, and creates a lot of administrative hassle.

More information

See the following publications:

- Mees, H.L.P., Driessen, P.P.J., Runhaar, H.A.C. and Stamatelos, J. (2012). Who governs climate adaptation? Getting green roofs for storm-water retention off the ground. *Journal of Environmental Planning and Management* (forthcoming).
- Stamatelos, J. (2012). Gardens in the sky: greening cities with green roofs. Master thesis. http://igitur-archive.library.uu.nl/student-theses/2012-0307-200756/UUindex.html.

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